

N^o 3485



A.D. 1913

Date of Application, No. 3485, 11th Feb., 1913

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PROVISIONAL SPECIFICATION.

No. 3485, A.D. 1913.

Improvements in Apparatus for Automatically Supplying Fluid Disinfectant or the like to Water Flushing Systems.

I, HARRY WILLIAM COX, of 67, Mount Street, in the City of Nottingham, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in apparatus for automatically delivering predetermined quantities of fluid disinfectant or the like into flushing systems, each time the flushing tank is filled again after being emptied. Its object is to provide a simple appliance which is operated by the action of the water rising in the flushing tank.

According to the present invention the reservoir or container for holding the fluid disinfectant or the like, is situated above the flushing tank, and is provided with an outlet which is carried up from the bottom of the reservoir to a point above the level of the fluid, so that the latter cannot overflow, but can be ejected by air pressure in the reservoir acting on the surface of the fluid.

The reservoir is filled through an inlet opening, which is closed by a screw cap or stopper which will effectually seal the inlet.

Depending from the reservoir into the flushing tank is a pipe, the lower end of which is open, whilst the upper end communicates with the air space above the fluid in the reservoir. The lower open end of the pipe is so situated, that it is opened to the atmosphere each time the flushing tank is emptied, whilst it is sealed by the water which rises some distance up the pipe when the tank is refilled. The action of the column of water in the said pipe forces the air which is trapped in said pipe into the reservoir or container. This action compresses the air in the container sufficiently to eject through the outlet previously described, the required quantity of fluid, which may be delivered direct into the flushing tank itself, or conveyed to say the closet pan by a connection with the flushing pipe.

The amount of fluid ejected from the reservoir will be determined by the pressure obtained each time the tank is filled, and this can be regulated by adjusting the height the water rises above the lower end of the dependent pipe. This may be varied by making the lower part of said pipe telescope in the upper part, so that its lower open end can be lowered or raised, so that more or less pressure is obtained in the reservoir when the flushing tank is filled.

The reservoir may be made shallow and of some considerable dimension in plan, so that it will hold a good supply of fluid, and there will not be much variation between its maximum and minimum working levels.

Or if preferred the fluid may be maintained at a constant level in a vessel with an outlet and connections arranged as previously described, by supplying

[Price 8d.]



Automatically Supplying Fluid Disinfectant or the like to Water Flushing Systems.

said vessel from a reservoir placed at a higher level, by a connection arranged on the well known bird fountain principle.

Dated this 10th day of February, 1913.

H. C. SHELDON,
63, Long Row, Nottingham, 5
Agent for the Applicant.

PROVISIONAL SPECIFICATION.

No. 6098, A.D. 1913.

Improvements in Apparatus for Automatically Supplying Fluid Disinfectant or the like to Water Flushing Systems. 10

I, HARRY WILLIAM COX, of 67, Mount Street, in the City of Nottingham, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to improvements in apparatus for automatically delivering predetermined quantities of fluid disinfectant into flushing systems, each time the flushing tank is filled, and refers to apparatus of the kind described in my pending Application No. 3485 of 1913, in which the disinfectant is contained in a reservoir situated above the flushing tank, provided with an outlet which is carried up from the bottom of the reservoir to a point above the level of the fluid, so that the latter cannot overflow, but can be ejected through the outlet by air pressure in the air tight reservoir, acting on the surface of the fluid. 15 20

Depending from the reservoir into the flushing tank is a pipe, the lower end of which is open, whilst the upper end communicates with the air space in the reservoir above the fluid. The lower open end of the pipe is so situated, that it is open to the atmosphere each time the flushing tank is emptied, whilst it is sealed by the water which rises some distance up the pipe when the tank is refilled. The action of the column of water in the said pipe forces the air which is trapped therein into the reservoir or container. This action forces sufficient air into the container to eject through the outlet previously described, the required quantity of fluid. 25

The object of the present invention is to provide means whereby the disinfectant instead of being delivered direct into the flushing tank and thus mixed with the whole of the water, is retained and only delivered with the last portion of the flush. 30

According to this invention, a supply pipe in connection with the outlet of the disinfectant container, is carried down so that it dips into the water in the flushing tank, and near its lower end it is provided with a trap, which may be formed by bending the pipe first upward and then down again, leaving a part or leg up which the disinfectant has to rise before it can escape into the flushing tank. To prevent the disinfectant from being siphoned from the container, an air inlet is provided in the upper end of this supply pipe. 35 40

Each time the flushing tank is filled, the water rises up the pipe and fills the trap in the supply pipe, whilst the disinfectant displaced runs down said pipe and is delivered into the water in the trap, where it lodges, as owing to its specific gravity being greater than that of water, it cannot rise up the upward bend of said trap. 45

When the flushing tank is being emptied, the disinfectant is still retained in the trap until this process is nearly completed, the fluid being only drawn out of the trap after the level of the water has descended below it, when the trap

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itself is then emptied by siphon action. The disinfectant is thus delivered into the last part of the flush, and a strong solution of the same is left as a residue in the closet pan or the like, until again flushed.

Dated this 11th day of March, 1913.

H. C. SHELDON,
63, Long Row, Nottingham,
Agent for the Applicant.

COMPLETE SPECIFICATION.

10 **Improvements in Apparatus for Automatically Supplying Fluid Disinfectant or the like to Water Flushing Systems.**

I, HARRY WILLIAM COX, of 67, Mount Street, in the City of Nottingham, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

15 This invention relates to improvements in apparatus for automatically delivering predetermined quantities of fluid disinfectant or the like, into flushing systems each time the flushing tank is filled again after being emptied, and its object is to provide a simple appliance which is operated by the action of the water rising in the flushing tank.

20 Referring to the drawings.

Fig. 1. is a sectional elevation, and .

Fig. 2. a plan showing apparatus constructed according to my invention applied to an ordinary flushing tank.

Fig. 3. is a sectional elevation showing an alternative form of reservoir.

25 Like letters indicate like parts throughout the drawings.

According to the present invention, the reservoir or container A for holding the fluid disinfectant or the like, is situated above the flushing tank B, and is provided with an outlet or delivery pipe C, which is connected to the lower part of the reservoir A, but is carried up to a point C' above the level of the fluid in the same. The latter cannot therefore flow out of the delivery pipe but can be ejected by air pressure in the reservoir A, acting on the surface of the fluid therein.

The reservoir A is filled through an inlet opening D, which is closed by a screw cap or stopper D' which will effectually seal the inlet.

35 Depending from the reservoir A into the flushing tank B, is a pipe E, the lower end of which is open, whilst the upper end E' communicates with the air space above the fluid in the reservoir A. The lower open end of the pipe E is so situated, that it is opened to the atmosphere each time the flushing tank is emptied, whilst it is sealed with water which rises up said pipe to the same level as it rises in the tank B, when the latter is filled. The action of the column of water which rises in the said pipe E when the tank B is filled, forces the air which is trapped in said pipe, into the interior of the reservoir or container A, and this action displaces a certain quantity of the fluid disinfectant, which is ejected through the outlet or delivery pipe C previously described.

45 The amount of fluid ejected from the reservoir, will be determined by the height the water rises above the lower end of the pipe E, each time the tank B is filled, and this can be regulated by adjusting the position of the lower open end of said pipe, relatively to the bottom of the flushing tank B.

This may be varied by making the lower part E² of said pipe telescope in the

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upper part E, so that the position of the lower open end can be raised or lowered as required.

The reservoir A may be made shallow and of some considerable dimension in plan, so that it will hold a good supply of fluid, and there will not be much variation between its maximum and minimum working levels.

Or if preferred the fluid may be maintained at a constant level in a vessel F, (see Fig. 3.) which is connected to a main reservoir A on the well known bird fountain principle. The delivery and air pipes E and C are connected to this chamber F as shown.

The fluid disinfectant may be delivered from the outlet or delivery pipe C direct into the flushing tank B, or said pipe may be connected to the flushing pipe, or connected to a pipe leading direct to the closet pan.

As shown in the drawings the outlet or delivery pipe C is arranged to deliver the charge into the flushing tank B, but said pipe is constructed so that it will retain the charge until the tank B is nearly empty. The charge is thus not delivered into the whole of the flushing water but only into the last portion.

For this purpose the outlet or delivery pipe C in connection with the disinfectant reservoir A, is carried down to near the bottom of the flushing tank B, and near its lowest end it is provided with a trap C², (see Fig. 1.) which may be formed by bending the pipe first upward and then down again, leaving a part or leg C³ up which the disinfectant has to rise before it can escape into the flushing tank. To prevent the disinfectant from being siphoned from the container A, an air inlet G is provided in the upper end of the delivery pipe C.

Each time the flushing tank B is filled, the water rises up the delivery pipe C and fills the trap C²; whilst the disinfectant displaced by the water rising in the pipe E, runs down said pipe C and is delivered into the water in the trap C², where it lodges, as owing to its specific gravity being greater than that of water, it will not rise up the upward bend C³ of said trap.

When the flushing tank B is being emptied, the disinfectant is still retained in the trap C² until this process is nearly completed, the fluid being only drawn out of the trap after the level of the water in the flushing tank B has descended below it, when it is then emptied by siphon action. The disinfectant is thus delivered into the last portion of the flush; and a strong solution of the same is left as a residue in the closet pan or the like, until the next flush.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. In apparatus for automatically supplying fluid disinfectant or the like to flushing systems displacing or forcing a charge of disinfectant out of a reservoir situated above the flushing tank through an outlet which is connected to the lower part of the same but is carried up above the level of the fluid to prevent the latter from overflowing, by means of air which is forced into the container by the action of the water rising in an air pipe which latter is connected to the air space in the reservoir and depends into the flushing tank substantially as described.

2. In apparatus for automatically supplying fluid disinfectant or the like to flushing systems according to Claim 1; the combination with a reservoir situated above the flushing tank of a delivery pipe which is connected to the lower part of the same but is carried up above the level of the fluid so that the latter cannot overflow and is provided with an air inlet to prevent siphoning action and an air pipe in communication with the air space in the reservoir which is carried down into the flushing tank so that the water rises in said pipe when the tank is filled and forces air into the container substantially as described.

3. In apparatus for automatically supplying fluid disinfectant or the like to flushing systems according to Claim 1; an air pipe depending into the flushing tank formed in two parts upper and lower one of which telescopes into the other

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so that the height of the open lower end of the pipe can be adjusted substantially as described.

4. In apparatus for automatically supplying fluid disinfectant or the like to flushing systems according to Claim 1, a delivery pipe which is provided with an air inlet to prevent siphoning action and is carried down into the flushing tank and provided at its lower end with a trap to retain a charge of disinfectant until the tank is nearly emptied substantially as described.

5. The combination and arrangement of parts constituting the complete apparatus for applying fluid disinfectant to flushing systems substantially as described and illustrated in the accompanying drawings.

Dated this 30th day of July, 1913.

H. C. SHELDON,
63, Long Row, Nottingham,
Agent for the Applicant.

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[This Drawing is a reproduction of the Original on a reduced scale.]

